



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/735,697

12/16/2003

Sung-Jae Cho

P56999

3543

8439 7590 07/24/2009
ROBERT E. BUSHNELL & LAW FIRM
2029 K STREET NW
SUITE 600
WASHINGTON, DC 20006-1004

EXAMINER

LAIOS, MARIA J

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

07/24/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/735,697	Applicant(s) CHO, SUNG-JAE	
	Examiner MARIA J. LAIOS	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 21 April 2009 has been entered. Claims 1, 7, 13, 19, 25 and 31 have been amended. Claims 1-36 are pending.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

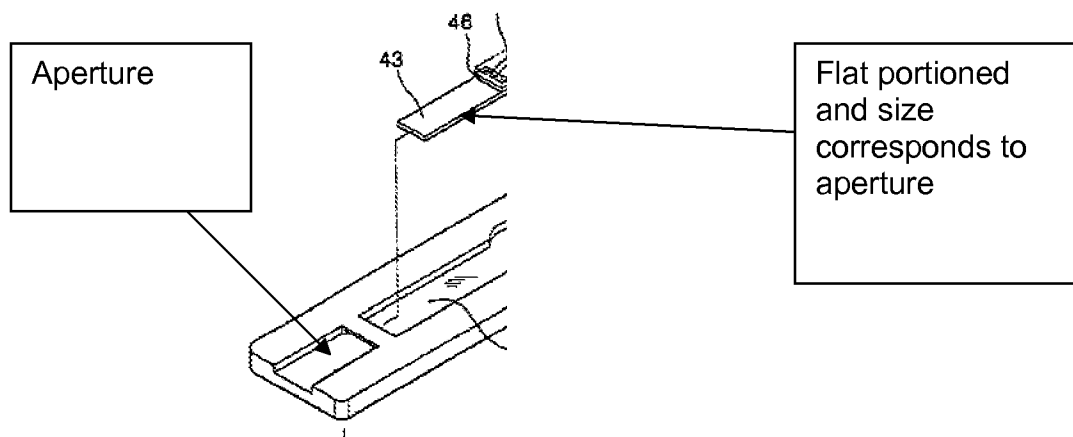
3. The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Azema et al '685 and Azema '290 on claims 1-5, 13-17 and 25-29 are withdrawn because the claims have been amended.

4. The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Azema et al '685 and Azema '290 and Cho because the claims 6, 18 and 30 have been withdrawn because the claims have been amended.

Art Unit: 1795

5. Claims 1- 6, 13-18, 25-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cho (US 2003/0077484 A1) in view of Azema (JP2002-334685).

As to claims 1, 2, 4, 13, 14 and 16, 25, 26, 28 Cho discloses a secondary battery comprising: and electrode assembly (having an anode, a cathode and a separator) including two tabs extending (31 and 31b) from the electrode assembly. Cho discloses a can that is adapted to accommodate the electrode assembly and the electrolyte and also where the can includes an opening (Figure 4). A cap assembly including a cap plate (40) and an electrode port (Figure 4), the cap is coupled to the opening of the can (Paragraph 15), an electrode port (36) connected to a tab (via lead 43, 43a). Cho shows a lead plate having an upper flat surface and a lower flat surface, the upper flat surface and the lower flat surface having size corresponding to the aperture (see figure below)



The lead plate (43) is placed into the aperture of the cap plate and is not welded to the aperture and is welded to the fuse (42 via sealing material 46). The upper and lower flat surfaces are disposed within the aperture (see figure below).

Art Unit: 1795



Cho does not disclose the material of the cap plate (40) or the can. Azema discloses a battery lid (2a) and teaches the material of the lid to be aluminum (Paragraph 25) and the can as aluminum (Paragraph 24).

It would have been obvious to one of ordinary skill in the art to have the cap plate of Cho made of aluminum as it is a light weight material thus reducing the weight of the cell.

As to claim 3, 5, 15, 17, 27, 29 Cho discloses a lead but does not disclose the material. Azema discloses a lead made of nickel (Paragraph 29) which is resistance weldable. The lead is also the port member since it is welded to the fuse.

It would have been obvious to one of ordinary skill in the art at the time of the invention to make the lead of Cho out of nickel as it is able to weld to the fuse of Cho easily.

As to claim 6, 18, 30, Cho discloses a protecting case member (34) between the electrode assembly and the cap assembly (Figure 18).

6. Claims 7, 9, 12, 19, 21, 24, 31, 33 and 36 rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita (JP 07-169506) in view of Aaltonen et al (US 6,824,917).

Yamashita teaches a battery (1 in Figure 1, which inherently has an electrode assembly including a positive electrode plate, a negative electrode plate, and a

Art Unit: 1795

separator interposed between the positive and negative electrode plates. Yamashita teaches that the can (2) is metallic and electrically conducting (paragraph 17) and is adapted to accommodate the electrode assembly and an electrolytic solution in Figure 1. The can (2) has a cavity (2a) in the external bottom surface and has a side opening (near the other end of the case (2), which houses the battery (1)). Yamashita teaches a lead plate (4a or 4b) to be pressed into the cavity (2a) of the can (2) and that the lead plate (4a or 4b) is connected to a safety device (3 in Figure 1, as applied to claims 7 and 19). Yamashita et al. discloses the using resin (5) to attach the lead into the cavity thus does not use welding.

Yamashita et al. does disclose a lead plate having an upper and lower surface within the cavity (Figure 1) but does not disclose the lead plate having a size corresponding to the cavity.

Aaltonen et al. discloses a battery system and teaches a recessed portion (120) having the substantially a size and shape to nest the body 130 of safety component (26) in the recessed portion and does not teach welding these pieces together (col. 4 lines 36-40). It would have been obvious to one of ordinary skill in the art at the time of the invention to make the recess portion of Yamashita substantially the size and shape of the lead in order to nest the components together as is taught by Aaltonen thereby preventing the additional step of using resin to attach.

Yamashita teaches forming an electrode assembly and forming an electrically conducting can, the can adapted to accommodate the electrode assembly (paragraph 20). Yamashita teaches forming at least on cavity (2a) in the external bottom surface of

Art Unit: 1795

the can (2). Yamashita teaches forming a cap assembly and coupling the cap assembly to the side opening of the can (paragraph 24). Yamashita teaches pressing a lead plate (4a or 4b) into the cavity (2a) of the can (2) and connecting the lead plate (4a or 4b) to a safety device (3 in Figure 1, as applied to claim 31).

Yamashita teaches that the lead plate (4a or 4b) comprises nickel (paragraph 18, as applied to claims 9, 21, and 33).

Yamashita teaches a cap plate adapted to be coupled to the side opening (1) of the can (2) and an electrode port adapted to be coupled to the cap plate via a gasket adapted to insulate the electrode port from the cap plate. Yamashita teaches that the electrode port is connected to the positive electrode plate (paragraphs 17 and 24, as applied to claims 12, 24, and 36).

7. Claims 8, 10, 11, 20, 22, 23, 32, 34, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita (JP Publication Number 07-169506) and Aaltonen et al (US 6,824,917) as applied to claims 7, 19, and 31 above, and further in view of Azema et al. (JP Publication Number 2002-334685).

The disclosures of Yamashita and Aaltonen et al. with regard to claims 7, 19, and 31 have been discussed above and are incorporated herein.

Yamashita modified by Aaltonen et al does not teach that the can is made of aluminum or an aluminum alloy. Yamashita does not teach that the lead plate and safety device are connected via a port member that is resistance welded to the lead plate or that the port member comprises nickel.

Art Unit: 1795

Azema et al. teach that the cap plate (2) is made from aluminum (paragraph 24, as applied to claims 8, 20, and 32).

Azema et al. disclose that the lead plate (4) and the safety device (4a) are connected via a port member (4b or 4c), the port member (4b or 4c) welded to the lead plate (4 in Figure 3 and paragraph 29, as applied to claims 10, 22, and 34).

Azema et al. discloses that the port member (4b or 4c) comprises nickel (paragraph 29, as applied to claims 11, 23, and 35).

It would have been obvious to one of ordinary skill in the art at the time of the invention to make the can of Yamashita out of aluminum like the can of Azema et al. The material of the can is a matter of design choice and changing out materials. Both cans are made out of a metallic electrically conductive material. Therefore switching out the steel of Yamashita for the aluminum of Azema et al. is only a matter of material choice and would be obvious to one of ordinary skill in the art.

It would have been obvious to one of ordinary skill in the art at the time of the invention to swap out the lead plate/safety device part of Yamashita for the lead plate connected to the safety device via a port of Azema et al. Both are made up of lead plates comprising nickel and a safety device between two end lead plates. The overall product is similar and would serve the same purpose. The only difference is the way that the safety device is connected to the lead plates, in Azema et al. it is via a port member while in Yamashita they appear to be welded together. Therefore because both of the lead plate/safety device parts are made out of the same material and serve

Art Unit: 1795

the same function, it would be obvious to one of ordinary skill in the art to swap out one for the other.

Response to Arguments

8. The applicant has not provided additional remarks in the response filed 6 April 2009.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARIA J. LAIOS whose telephone number is (571)272-9808. The examiner can normally be reached on Monday - Thursday 10 am -7 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on 571-272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1795

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. J. L./
Examiner, Art Unit 1795

/Dah-Wei D. Yuan/
Supervisory Patent Examiner, Art Unit 1795